

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

*Ex parte* WOLFGANG FRIEDRICH,  
HEINZ-JOSEF KNEUPER,  
KARSTEN ELLER,  
ANDREAS HENNE,  
and  
ROLF LEBKÜCHER

Appeal No. 2000-2179  
Application No. 09/235,242

ON BRIEF

Before PAK, LIEBERMAN, and PAWLIKOWSKI, *Administrative Patent Judges.*

PAK, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 2 through 6, which are all the claims pending in the above-identified application.

According to appellants (Brief, page 3), "none of the claims have been argued separately." Therefore, for purposes of this

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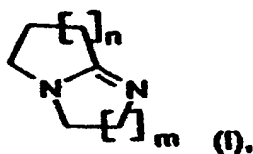
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appeal, we select claim 6 from all of the claims on appeal and determine the propriety of the examiner's rejection based on this claim alone consistent with 37 CFR § 1.192(c)(7)(1999). Claim 6 is reproduced below:

6. A process for preparing a  $\gamma$ -alkoxyamine by

- a) reaction of an  $\alpha,\beta$ -unsaturated nitrile with a monohydric, dihydric or trihydric alcohol in the presence of a basic catalyst at from -20 to 200°C to form a  $\beta$ -alkoxynitrile, and
- b) subsequent hydrogenation of the  $\beta$ -alkoxynitrile in the presence of a hydrogenation catalyst, without prior removal or neutralization of said basic catalyst,

which consists essentially of using in the first step a diazabicycloalkene catalyst of the formula I



where from 1 to 4 hydrogen atoms on the diazabicycloalkene nucleus may be independently replaced by the radicals  $R^1$  to  $R^4$ , in which case  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  are each  $C_{1-20}$ -alkyl,  $C_{6-20}$ -aryl or  $C_{7-20}$ -arylalkyl, and

$n$  and  $m$  are each an integer from 1 to 6, and effecting the hydrogenation in the second step at from 50 to 250°C in the presence of a hydrogenation catalyst and of the catalyst of the formula I.

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The prior art references relied upon by the examiner are:

Sullivan, III et al. (Sullivan)	4,231,956	Nov. 4, 1980
Green	4,617,154	Oct. 14, 1986
O'Lenick, Jr. et al. (O'Lenick)	5,196,589	Mar. 23, 1993

The reference relied upon by the appellants is:

Brunson, "Cyanoethylation," *Organic Reactions*, Vol. 5, pp. 79-135 (New York, John Wiley & Sons, 1949).

Claims 2 through 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over the combined disclosures of O'Lenick, Green and Sullivan.

We have carefully reviewed the claims, specification, and applied prior art, including all of the arguments advanced by both the examiner and the appellants in support of their respective positions. This review leads us to conclude that the examiner's Section 103 rejection is well founded. Accordingly, we will sustain the examiner's Section 103 rejection. Our reasons for this determination follow.

We find that O'Lenick teaches a process for preparing an alkoxypropylamine by reacting alcohol with acrylonitrile in the presence of any cyanoethylation "alkaline catalyst, e.g., benzyltrimethylammonium hydroxide, potassium hydroxide, sodium methoxide, or sodium hydroxide, to form B-alkoxypropionitrile" and hydrogenating  $\beta$ -alkoxypropionitrile, without prior removal

prior to removing or neutralizing the cyanoethylation alkaline catalyst. In support of this position, the appellants refer to the Brunson reference, which states in relevant part (page 90):

The cyanoethylation of alcohols is an equilibrium reaction. The position of the equilibrium is more favorable to the addition product with primary than with secondary alcohols. Thus, 2-propanol gives a lower yield (69%) of cyanoethylation product than methanol, ethanol, or 1-butanol, which give 89%, 78%, and 86% yields, respectively. Caution must be observed in the isolation of the  $\beta$ -alkoxypropionitriles by distillation, particularly those derived from secondary alcohols or from primary alcohols with more than seven carbon atoms. The alkaline catalyst must be destroyed by acidification or neutralization since the products are readily dissociated by heat in the presence of alkalies into the original alcohol and a polymer of acrylonitrile. [Footnotes omitted.]

The appellants also refer to Green and Sullivan for the same proposition.

Although Brunson, Green, and Sullivan recognize the importance of removing or neutralizing the cyanoethylation alkaline catalyst in **isolating**  $\beta$ -alkoxypropionitriles, we observe that O'Lenick teaches that it is desirable to directly hydrogenate  $\beta$ -alkoxypropionitriles resulting from the cyanoethylation without prior removal or neutralization of the cyanoethylation alkaline catalyst. See O'Lenick in its entirety. We find that O'Lenick exemplifies such a process in its Examples

1, 2, 10, and 11. See columns 4-6. We find that O'Lenick teaches reacting an alcohol with acrylonitrile in the presence of a cyanoethylation alkaline catalyst, i.e., potassium hydroxide, and then hydrogenating the resulting product, without any prior removal or neutralization of the cyanoethylation catalyst, to obtain a product yield of 58.2% or 68.2%. See Examples 1 and 10. We find that O'Lenick also teaches reacting an alcohol with acrylonitrile in the presence of a cyanoethylation catalyst, i.e., potassium hydroxide, and a specific free radical inhibitor and then hydrogenating the resulting product, without any removal or neutralization of the cyanoethylation catalyst, to obtain a product yield of 98.6%. See Examples 2 and 11. The use of a free radical inhibitor allows the resulting product to have

fewer undesirable by products [sic, by-products] giving lighter color, higher amine values, higher primary amine content, lower hydroxyl values which are indications of the greater reaction efficiencies. The process is shorter in duration and substantial reduction in catalyst poisoning in the hydrogenation step. This process with its inherent lower polyacrylonitrile content allows for the elimination of a washing step practiced in the older processes, prior to hydrogenation. [See O'Lenick, col. 1, lines 13-21.]

Thus, we concur with the examiner that it would have been obvious to directly hydrogenate  $\beta$ -alkoxypropionitriles resulting from the cyanoethylation reaction without prior removal or

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neutralization of a cyanoethylation alkaline catalyst, such as that claimed, in the process of O'Lenick.

The appellants take the position that the phrase "consists essentially of" recited in claim 6 excludes the presence of the free radical inhibitor described in O'Lenick. We do not subscribe to this position.

It is well settled that the phrase "consists essentially of" renders a claim of the type under consideration open to unrecited components which do not materially affect the basic and novel characteristics of the claimed invention. See *PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1354, 48 USPQ2d 1351, 1353-54 (Fed. Cir. 1998). The burden is on the appellants to demonstrate that the basic and novel characteristics of the **claimed invention** would be materially affected by the presence of the free radical inhibitor described by O'Lenick. See *In re De Lajarte*, 337 F.2d 870, 874, 143 USPQ 256, 258 (CCPA 1964). The appellants, however, fail to carry that burden. In fact, it can be inferred from O'Lenick that the claimed process is not materially affected by the presence of a beneficial free radical inhibitor. Compare *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976).

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Even if we were to accept the appellants' argument regarding the preclusion of the beneficial free radical inhibitor in the claims on appeal, our conclusion would not be altered. As indicated *supra*, O'Lenick specifically teaches that its process can be carried out without any free radical inhibitors. See *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807, 10 USPQ2d 1843, 1846 (Fed. Cir. 1989) ("the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered"); *In re Boe*, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966) (all of the disclosures in a reference, including non-preferred embodiments, "must be evaluated for what they fairly teach one of ordinary skill in the art").

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In view of the foregoing, we affirm the examiner's decision  
rejecting claims 2 through 6 under 35 U.S.C. § 103.

No time period for taking any subsequent action in  
connection with this appeal may be extended under 37 CFR  
§ 1.136(a).

AFFIRMED



CHUNG K. PAK )  
Administrative Patent Judge )



PAUL LIEBERMAN )  
Administrative Patent Judge )

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BEVERLY A. PAWLIKOWSKI )  
Administrative Patent Judge )

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